Abstract of the Disclosure

Methods and systems for fast packet forwarding include traversing a trie data structure stored in on-chip memory based on bits in an input address. The bits in the input address result in a predetermined location in the data structure.

5   The number of bits that have a first value and that are located before the determined location is calculated. The calculated number of bits corresponds to an offset in a second memory device of an address to which the packet having the input address is to be forwarded. The address can be extracted using a single access to an off-chip memory device.